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ABSTRACT

In the present stage of development of the Brazilian university system, graduate studies are assuming a role of increasing strategic importance with repercussions of a multiple dimension in the national growth process. This report presents a general view of the First National Plan of Graduate Studies (PNPG), of the Institutional Program for Training Teachers (PICD), of the National Program for Training of Teachers from Institutions of Higher Education (PREDCAPIES), and of other forms of action performed in conjunction with other governmental agencies. Basic directives are reviewed along with guidelines and proposed measures. (LBH)

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MINISTRY OF EDUCATION AND CULTURE
DEPARTMENT OF UNIVERSITY AFFAIRS

NEW PERSPECTIVES FOR THE SYSTEM OF HIGHER EDUCATION

Operationelization and Implantation of the National Plan for Graduate Studies

1976 1951 capes 25 JUBILEE

COORDINATION FOR TRAINING HIGHER EDUCATION PERSONNEL (CAPES)

MINISTRY OF EDUCATION AND CULTURE
DEPARTMENT OF UNIVERSITY AFFAIRS
COORDINATION FOR TRAINING HIGHER EDUCATION PERSONNEL (CAPES)

NEW PERSPECTIVES FOR THE SYSTEM OF HIGHER EDUCATION

Operationalization and Implantation of
the National Plan for Graduate Studies

BRASILIA - FEDERAL DISTRICT
1976

"It is a privilege for me, as minister of Education, to report the results of a coordenated effort of the Government, and which comes into effect at the procise moments in which you, Mr. President, approve The National Plan for Graduate Studies.

At the first meeting of Ministers on March 19, 1974, Your Excellency emphasized the need to encourage graduate le/el courses, but under rigid evaluation. And, special priority should be given to upgrading the goals and efficiency of Higher Education.

In this manifestation, the President of the Republic expressed of the Republic expressed his worries about the quality of this Level of Education, which is more directly responsible for the training of human resources so badly needed in the social and economic development of the country. The plan which is now about to be approved by your Excellency, atempts to provide an adequate answer to that worry, which has become that of all of us.

The National Plan of Graduate Studies has inserted itself and even corcens a series of measures, already in full implementation counting with your Excellency's approval, and ordained to quarantee an ordered expansion, without neglecting the upgrading of qualitative standands in the extant education system.

Convinced as we are that the most effective means to attain these abjective is the adequate training of the teaching staff, we have chosen this as the principal function of graduate courses.

Ministry of Education

Ney A. Braga

(On the occasion of the President's approval of the National Plan for Graduate Studies (PNPG) July 30, 1975.)

Education, and above all, Higher Education constituties one of the requires the greatest proportion of Human Resources at a higher level. Thus, it becomes necessary to guraantie that the University system can commit on a quantity, composition and quality of human resources indispensable to its development.

Thus, a great thrust is being given graduate degree programs, in Terms of the First National Plan of Graduate Studies, which aims at conssolidating and upgrading the performance standanrds of Master's and Doctoral Level courses in the country, as well as plan their balanced rowth.

Of special importance among the component programs of this plan, is that of Institutional training. Its objective is to offer extraordinary conditions to institutions of Higher Education for the Training of their technical and teaching staffs.

Edson Machado de Souza
Department of University Affairs
March, 1975.

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PRESENTATION

In the present stage of development of the Brazilian University System, Graduate Studies are assuming a role of increasing strategic importance with repercussions of a multiple dimension in the national growth process.

Beginning in 1960, we find and increased interest in encouraging and establishing graduate programs in the country. As a result, the present decade faces the challenge of systematizing and institutionalizing the process.

The random proliferation and diversification of courses, especially in the last five years, with their immediate consequences and mediate results, led governmental agencies to establish mechanisms to guide and controle their development. A critical analysis of the situation shows an urgent need to develop a national policy of graduate studies, integrated in the two National Plans for Development (PND I & II) and articulated with the Basic Plan for Scientific and Technological Development.

The long-range effects to be produced in the Brazilian Developmental Process and the operacionalization of the national graduate studies policy by means of the National Plan of Graduate Studies (PNPG) is also bound to the very philosophy of the PND, that is, "National Growth (Development) accordin to a societal model which is capable of transforming and reforming its economics, social and political institut'ons, follwing the objectives of a national plan and respecting the human values and identity of the Brazilian culture"

CAPES, as an agency of the Ministry of Education and Culture (MEC) responsible for the administration of activities to upgrade personnel in higher education in harmony with the general directives determined in the PNPG and working in integration with the Department of University Affairs (DAU), develops many activities which aim at meeting the present needs through specific programs.

The present publication hopes to present a general and synthesized view of the First National Plan of Graduate Studies (PNPG), of the Institutional Program for Training Teachers (PICD), of the National Program for Training of Teachers from Institutions of Higher Education (PROCAPIES) and of other forms of action by CAPES performed in conjunction other governmental agencies.

Darcy Closs
Director General

Coordination for Training
Higher Education Personnel

1. NATIONAL PLAN FOR GRADUATE STUDIES

1.1 OBJECTIVES

Among the general functions of the Higher Education System in present Brazilian Society the goals of Graduate Studies are the following:

- To train professors for university teaching in order to meet the quantitative expansion of learning and to raise its quality.
- To train researchers for scientific work directed toward creating nuclei and centers which will meet the program and regional needs of society.
- To prepare high level professionals, according to the demand of the labor market, for private and public institutions.

The main objective of the National Plan of Graduate Studies is to transform the universities into true centers of permanent creative activities. This will be reached to the degree that the System of Graduate Studies exercises, with efficiency, these formative activities and carries out a constant study and analysis in all fields and areas of human knowledge and the Brazilian culture.

This is expressed concretely in the induction of the behavior of the University System as a whole, to:

- Diffuse and expand the knowledge and culture of society.
- Utilize the resources and instruments of teaching and research for a real change in the material and cultural conditions of a society geared up for its social and economic development.
- Prepare, train and qualify human resources on a high level, both in volume and diversity and adequate for a productive national system and the university's own educational system.

1.2 BASIC DIRECTIVES

Based on the results of the diagnosis of the situation of graduate studies in Brazil, the National Plan for Graduate Studies presented essential and viable directives to guide the action of agencies charged with the execution of the national policy of graduate studies:

– Institutionalization of the Graduate System:

Institutionalize the graduate system, consolidating it as a regular activity in the university program and assuring it stable financing.

– Elevation of the Standards of Performance:

Raise the present standards of graduate performance and justify the use of human resources, increasing the output and the productivity of the work processes, assuring the best possible quality for the courses.

– Planning for Expansion:

Plan its expansion with the objective of a more balanced structure among the areas of educational and scientific work and among the regions of the country, increasing the efficiency of investments and broadening the cultural and scientific patrimony.

– Such guidelines will refer fundamentally to institutional measures of a national scope, at the university level and at the level of different graduate level courses with the purpose of consolidating the system by proposing a more adequate division of the functions of the government agencies involved. Thus, the normative functions and the financial arrangements related to the usual activities of the Masters and Doctoral courses must pass through the Ministry of Education and Culture, while the remaining departments and agencies will participate with supporting programs and research projects.

1.3 GUIDELINES AND MEASURES PROPOSED ON A NATIONAL SCALE FOR THE NATIONAL PLAN OF GRADUATE STUDIES.

The PNPg proposes for the functioning of the National System of Graduate Studies, a philosophy which is concretized in its conceptualization and its structure.

At the same time it defines paths which are compatible with the instrumentalization of its general directives.

1.3.1 Institutionalization of the Graduate System on a Material Scale.

The institutionalization of the graduate system, the prime general directive of the PNPG, will be obtained through the observation and updating of a series of strategic propositions:

a) Concept of Graduate System

According to the norms of the Federal Council of Education and the legislation in force, within the university complex, the Graduate Studies constitute a System which encompasses the following modalities of Teaching:

Master's and Doctorate Degrees – Graduate Studies in a strict sense. The Masters' and Doctor Level Programs lead to professional degrees, with a Master's or Doctoral degree conferred at the end of a process of learning and research, determined by specific norms.

Training and Specialization – Graduate Studies in a broad sense. These Courses train professionals by means of a more restricted content and time line, conferring a certificate to graduates.

b) Composition of the Graduate System.

The Graduate Study System is made up of:

– The National Council of Graduate Studies, a collegiate iner-ministerial agency, responsible for the formulation of the general Graduate Studies policy and the coordination of its execution.

– The Federal Council of Education, an agency of the Ministry of Education and Culture responsible for regulating the general legal procedures and the accreditation of graduate programs.

– The Department for University Affairs – DAU, an agency of the Ministry of Education and Culture responsible for carrying out policies and programs.

– The Coordination of the Training of Personnel in Higher Education – CAPES – an agency responsible for the orientation, implantation, and evaluation of programs for Training Teachers and other human resources.

– The National Council for Scientific and Technological Development – CNPq, an agency of the Secretariat of Planning of the Presidency of the Republic, is responsible for rendering advisory services in the elaboration of the scientific and technological development policy and for coordinating and supporting the scientific production activities.

– Other departments and agencies, governmental or not, with supportive and motivating roles in research activities and the training of human resources.

– Institutions of higher learning and research centers, both public and private, which offer Graduate Studies courses, and directly oversee the operation of such courses.

c) Institutional Consolidation.

Within this concept,the system involves several institutional levels of coordination,planning and execution, which would be geared toward a clearer definition of funcions and responsibilities with a view to the administrative and financial compatibility which characterizes and institutional stable system.

– The current activities in almost the entire system are rigid and possess diverse criteria of administrative dependence, autonomy, budgetary ties, work loads, representation and decision making.

– The institutional indefinitions and overlaps which were typical of the initial phases of graduate studies should be overcome in the presente phase as the institutional consolidation functions proposed by the PNPG are activated.

The implantation of PNPG will represent an integration between the Ministry of Education and Culture and other governmental funding agencies, as well as between this Ministry and the public and private institutions of higher education and research.

d) Financial Stability.

According to the PNPG, the process of financial stability will be guided by the following directives.

– At the Federal Government level – The Government's resourses must continue to complement those of the universities, whether public or private, in the installation of courses, in the maintenance of scholarships at various levels and in financing projects and research; on the other hand, they must progressively withdraw from other duties.

– At the Ministry of Education and Culture level – This Ministry must gradually absorb the duties with investments in physical plant, personnel and other expenses in Federal Instituions, including the grants and scholarships necessary for the faculty training programs. Additionally, it should support the initiatives for Graduate Studies in the entire system of higher education.

Therefore, institutional consolidation and financial stability are interdependent elements of a general strategic order, aimed at correcting the distortions which are present on the graduate level. These are:

– The gap between graduate and undergraduate studies.

– The existence of an independent administration and the adoption of academic norms which are incompatible with those accepted by the other sectors of the Institution:

– The duplication of means with the same ends;

– A diversity of sources and forms of payment.

From this point of view, the trends observed in the former phase should be corrected, as well as those which led to the isolation of graduate activities in relation to the other university activities.

In respect to this, the institutional consolidation recomended by the PNPg attempts to lead the Brazilian University to a more integrated action between the graduate and undergraduate levels, promoting the integration of graduate activities at both the departmental and interdepartmental levels.

1.3.2 Raising Performance Standards on the National Level.

On the National Level, the raising of the performance standards of the system implies the need for all Central Agencies to adopt a perspective for action, consciously geared to the need for increase productivity and scientific – didactic excellence at this level of learning.

This Plan proposes:

– That an operational process of control and evaluation be established;

– The graduate studies in the strict sense of the Master's and the Doctorate, be transformed into effective nuclei to train highly qualified personnel for higher education and research.

– That the graduate courses in the broad sense of training and specialization be activated and stimulated through specific programs in order to meet, in the most efficient and flexible way, the present needs of the work market.

1.3.3 Planning for Expansion on the National Level.

The planning for the expansion of graduate studies hopes to avoid the partially spontaneous and disordered growth that has occurred up to now.

The program for expansion must be effectively integrated to the social and economic policies of national development (the II National Plan for Development – II PND and the II Basic Plan for Scientific and Technological Development – II PBDCT).

In this perspective, for planing to be effective, it is essential that:

– The various institutional levels, be articulated so that they can fulfill their functions, within deadlines and procedures for presentation, discussion, approval and implementation of initiatives; and that these be ordered according to the proper needs of the scientific educational process;

– The directives of the PNPG be interpreted with the necessary flexibility to, at the same time, correct distortions and progressively consolidate the system;

– The strategic implantation of growth during the next five years should be made through readjustments and planning to meet the needs and possibilities of the departments, institutions and governmental agencies involved;

– The criteria and parameters for assessing the needs for physical expansion of the system be based on the specific characteristics and formative functions of Graduate Studies within the University and Brazilian society;

– The programming and the administration of resources should take into consideration the economic and financial behavior of this level of education and the realistic capabilities of the joint financial funding system;

– The implantation and expansion of the Masters and Doctoral Courses also meet criteria of geographic – educational polarization.

1.4 GUIDELINES AND MEASURES PROPOSED FOR THE UNIVERSITY LEVEL BY THE NATIONAL PLAN OF GRADUATE STUDIES.

In order for the National System of Graduate Studies to ful fill its functions with grater efficiency it must be consolidated from a financial and institutional standpoint, raising its performance standards and planning its expansion.

Therefore, the "dynamization of its activities on a national level with the continuous and permanent participation of graduate studies in Higher Education Institutions" is the desired and anticipated effect of the strategies for its implantation.

This gives rise to the predominant role of Higher Education Institutions. The manner in which these Institutions respond to the challenge to implant the PNPG by putting into action the measures proposed, will determine the evolution toward a new phase of development in the Brazilian System of Higher Education.

1.4.1. Institutionalization of the Graduate System at the University Level.

– The two guidelines, institutional consolidation and financial stability, must lead to a process, political – administrative in nature within the institution's environment, since they imply changes and new guidelines for present procedures.In many instances, neither the Graduate Study Programs nor the departments find themselves in the condition to consolidate and stabilize their activities in a coherent and consonant manner, based on similar criteria.

In this case, in order to achieve a more synchronized and consistent action in Institutions of Higher Education, the PNPG proposes the following general guidelines for the Universities.

– Adjust the present Graduate Studies procedures to the functional and hierarchical structure already accepted, updated and operationalized within Brazilian Higher Education, according to the University Reform, without forcing a break in the common expectation of students, faculty members and administrators.

– Make a considerable effort to improve criteria and financial administrative methods of the institutions in order to achieve a higher flexibility an facility in the manipulation of resources an people.

– Encourage the modifications necessary to adjust the financing of the system, being careful to avoid brusque and disorganized changes which can cause an inbalance requiring solutions for continuity in many programs which are supported at the present time only with resources out-side the budget. In this context it must be taken into consideration that resources of this type are very instable and not to be counted on for achieving essential items.

– Encourage the effective participation of the entire university in it's Undergraduate, Graduate and Research activities estabilishing the general rule that all qualified faculty for Graduate Studies also participate in Undergraduate teaching, and that Graduate Student, whenever possible and convenient, support these tasks as class monitors and teaching assistants, officially appointed and with rights to a teaching fellowship.

Besides these general guidelines it is necessary that the universities, considering current problems, take the following specific steps:

– The joint allocation of personnel and resources by Departments, both for Graduate and Undergraduate Programs. Both for Masters and Doctoral Programs proper to a department as well as for interdepartmental programs, the maintenance of a teaching staff, technicians and administratives personnel, should remain under the regular budget of the institution, without diminishing supplementary aid from the financing of specific projects.

– The promotion of regular activities of joint coordination and representation for Undergraduate and Graduate Study on both the departmental and interdepartmental level, according to the areas of interest and their curricular, thematic and professional affinities.

– The implementation of central agencies, already forseen by the Federal Council of Education and by the University Reform, to coordinate the Graduate Study activities at a Vice - Presidency level as well as collegiate level for the internal normative schemes to the university.

1.4.2 The Raising of Performance Standards at the University Level.

In the PNPG, the raising of the performance-level is understood as a series of changes in the conditions of work and in the organization of educational activities and scientific production. In order to make this become a fact, it is important that these conditions and this organization be analysed and developed, starting from a conceptual view of Graduate Teaching as a work system.

Therefore, the university role is a coordinate its works in the direction of objectives which are defined by its colleges and components.

In this sense, the PNPG set forth the following aspects:

– Economic, financial, and organizational rationality related with the other activities;

– Integration with CAPES in programs to train teaching staffs, in view of the qualification of the human resources of the university itself.

– Sponsoring programs of internal and external exchange.

1.4.3 Planning for Expansion at the University Level.

The principal strategy for development at the university level will consist in promoting its consolidation and more efficient growth in terms of human resources, to the degree that the restraints caused by the development of the system up to the present are overcome.

Thus, in order of priority, the Graduate Study activities should be polarized according to the socio-cultural area where each institution operates. Such an alternative attempts to avoid on one side the excessive division of efforts, on the other the exaggerated concentration of activities in certain programs and regions. For this reason, long term effects of the various alternatives of polarization, should be forecast and the basic initiatives for synchronizing expansion and diversification activities should be programmed.

The iniciatives for creating new courses and for increasing and diversifying the existing

ones will start from both the agencies for Educational Policy Making, such as from agencies supporting research, or the university trough its acdemic unit. In any case, these initiatives should become reality in accordance with the procedures stated herein:

– Define its characteristics in order to meet the current and future demands for Undergraduate and Graduate Teaching Staff; researchers and professionals both for the research institutions and for the regional work market;

– Calculate the required resources in terms of type and volume. Investigate one's possibilities and avaliable resources, and those of the various financing sources in accordance with the characteristics of budgets, supplements, contracts and funds, and the specification by each source for the use of the resources.

– Work up specific projects for these initiatives, clearly stating their objectives in terms of forming initial nuclei and opening and diversifying interdisciplinary areas. These projects should be elaborated at the institutional level by groups of students and faculty who are directly interested, coordinated by the departments involved, and advised by the universities, by the Ministry of Education and by the other agencies and financing agencies.

– Promote the future needs of expansion and diversification based on its capacity to meet undergraduate level needs, and with this as a departure point, to regulary guarantee the offering of programs, to qualify human resources on both the short and long range.

By employing these guidelines, we expect that the genuine problems of growth will be discussed, expressed precisely and resolved, all the way from the student level through researchers and faculty to the level of the Ministry involved in the growth of the system, always considering the various possible strategies for each case according to the institutional needs and working process.

1.5 GUIDELINES AND MEASURES PROPOSED IN THE NATIONAL PLAN OF GRADUATE STUDIES AT COURSE LEVEL.

The guidelines and measures proposed by the National Plan of Graduate Studies (PNPG), should be implanted in the majority of cases at the Course Level and the departments to wich they are connected.

1 5.1 Institutionalization of the Graduate System at the Course Level.

At the course level of graduate studies, the institutionalization of the system implies a clear definition of the teaching, scientific and professional content of its undertaking.

It is important to point out the operational nature of the functioning of a course, which should always be made viable immediately after the priority consideration of meeting its didactic functions:

– The scientific activities comprise the organization of standard lines of research projects. The production of professional works on communication, discussion and exchange of information cultural, scientific and technical themes, will be carried out preferably in groups, many times of an interdisciplinary nature and interinstitutional. These include a task that is directly productive to the course, namely the contribution and participation of its students as a form of learining.

– The professional activities also develop in groups and with the participation of several institutions in the preparation and execution of technical and organizational projects formed specifically to render advisory services in order to develop a productive system, formulate plans and government policies.

Thus, the performance-standards of a course are understood as logical and accountable relationships among the types, values and duration of resources and activities involved. The quality increase of these standards will be made through measures which modify the nature of these type of work.

1.5.2. The Raising of Performance Standards and Planning for Expansion at Program Level.

The raising of performance standards includes the most fundamental and operational recommendations and propositions by PNPG for Programs at the Graduate Level. These directives include those of planning, considering the increase both quantitative and qualitative of its work potential, as the priority goal of system expansion at the course level.

The measures are divided into four groups according to functions and areas of activity:

a) Admission requirements and selection process;

b) Work load and scholarship grants to students;

c) Educational process and scientific production·

d) Work load and selection of teaching faculty.

a) Admission requirements and selection process;

The knowledge, the aptitudes and the objectives of the candidates comprise a significant element of the system, since resources will be mobilized to build on these characteristics. The candidates come from two previous situations; the majority (presently about 70%) come directly from the undergraduate level, the rest are faculty members or professionals who graduated some time ago. The Graduate Study courses themselves will find it difficult to directly change the admission requirements of their candidates and experience shows that the level of admission has to be practically taken as presented.

Therefore, the ideal selection process should take into consideration:

– The aptitudes, which depend upon cultural and personal characteristics;

– Previous knowledge acquired on the graduate level and in professional work experience;

– The expectations of the candidates in terms of professional accomplishment and research work.

The PNPG Suggests some measures of a general nature to improve the effectiveness of selection;

– The Masters and Doctoral programs must acquire better information on the related undergraduate programs and on the candidates' potencial in order to better plan the selection process and its work with each group.

– The procedures of public relations, personal contact, interviews, admission and enrollment must be improved in order to provide a more careful handling of candidates and students, increasing their alternatives of professional choice and trying to attract the more capable and interested students.

– The institution which offers the Masters and Doctoral programs must present, during the time of personal contact with the candidates, information about their curriculum and the research projects both under way and in the planning phase; with this it is possible to elaborate with the candidates, work plans which form a reciprocal, flexible, and responsible commitment.

These measures are not an attempt to create uniform procedures, but call attention to the strategic aspect of selection. It is through this process of selecting competent and interested people that a program fulfills its level of its level of expectation.

Some current procedures are being used to meet the excessive pressures of demand, bringing about program and regional bottlenecks with subsequent deficiencies to the Graduate courses. These problems can only be overcome with broader strategic measures for growth. However, as the effects of a more oriented expansion emerge, some current activities for recruitment and selection must be reconsidered, especially those dealing with the so called "Leveling" or "remedial" courses.

b) Work load and scholarship grants to students;

Among the recommendations made by PNPG with regard to work load and scholarship

grants to students, we recognize the following as the more important:

– That the majority of students in each course attend full time with scholarships, having their work load conveniently divided among hours for study, research activities and teaching activities;

– That the criteria to measure output, promotion and granting of degrees, take into consideration their entire academic performance, measuring it cumulatively from a broad gamut of activities;

– That adequate physical facilities and agreeable surrounding conditions for teaching activities and other works carried out by students at the institutions be made available;

That during all the phases of graduate study, individual academic advisors be appointed to follow closely the work of each student, and the various advisors coordinated at the program and departmental levels for more effective group performance in the lines of work and research;

– That the scholarships be granted and maintained in the form of commitments between the candidates and the various institutions involved. For students who are attached to institutional programs for training faculty, the scholarships and supplementary aid may be granted through the candidate's institution. In other cases, scholarships may be granted to whoever should present work plans for individual or team work which are considered relevant by the institution offering the program of study.

c) Educational process and scientific production;

Since the programs function act in a way to transform the knowledge and aptitudes of a heterogeneous group of candidates, its educational process must introduce diversified activities for the learning, the training and the formation of these candidates. Graduate work demands more by its level and relevance of subjects and it is at the same time an intensive work process. For this reason it is beneficial that:

– The present spectrum of educational and teaching methods be enlarged to offer more adequate resources to each community of students;

– The process of scientific production be developed to permit, at the same time, both the initial training of future researchers and the execution of projects with potential for technical and social innovation;

– A progressive articulation of curriculum and educational topics be promoted between the undergraduate and graduate level;

– The use of laboratores and planning offices for joint undergraduate and graduate activities be given more emphasis, observing the scientific methodology involved in the progressive mutual effort of groups of students, professors and researchers in long term research.

– The credit system and the criteria of graduation should be perfected and adjusted to completely utilize the time, the content and the topics of the course itself for the final preparation of a thesis or dissertation. Besides this, that the students be prepared, beginning from their enrollment, in research activities, investigation and publishing, as preparation for the thesis, instead of a simply postpoining it for after the course work.

d) Work load and selection of teaching faculty.

The continuity of teaching and research depends upon the work load of faculty, researchers and technicians. Plans and long terms projects cannot be carried out if the work load is fragmented

in time and in spance. On the other hand, the selection of personnel at this level is important to jointly upgrade the potential of Master's courses and of the research centers. As teaching and research activities are typical of groups, the diversification of aptitudes should contribute to better interaction in team efforts, and not to the separation of team efforts.

Thus, PNPG recommends that:

– The faculty members, researchers and technicians of several courses work preferably on a full time basis, hired in accordance with the usual procedures for university personnel

– The integration of undergraduate with graduate studies lead a significant part of the department staff to exercice activities simultaneously at the two levels, observing the best distribution of work load;

– The complementary and specific activities that cannot be carried out by full time personnel, be performed through exchang programs, temporary service, part time faculty and visiting professors;

– The selection of these professionals be planned and timed with the plans for expension and training, both of courses and universities. Thus, the substitution of faculty who temporarily leave the institution for training and exchange programs, should be planned as a function of the expectations for growth and the conditions which bind the elements lacing in programs and departments;

– The criteria for selecting this personnel consider their future plans and prospects in pedagogical and scientific terms, with basis in the analysis of aptitudes and potential for the scientific production of the candidats.

In order that all these measures can be readily implemented, a high degree of work commitment is necessary among faculty members, researchers and the institution that hires them. One of the principal components for the maintenance of this commitment will be attained by the systematic promotion of faculty and researchers to the precise categories of degree and salary range, keeping in ming the providions for fringe benefits and incentive pay, associated with scientific production and projects developed in the institution.

The set of guidelines furnished for the quality increase of performance at the program level is feasible only if articulated at the broader institution-wide level.

Conceptually this means an extension of the work pattern described at the program level to the university level. This is due to the fact that we deal with a system comprised of units, centers, institutes, departments and programs dealing with undergraduate and graduate studies, with research activities.

The viability of the proposed changes implies the articulation and support of each sub system, which will operationalize the directives of the PNPG through the central agencies for policy formation and executive performance of the national system of Graduate Studies.

Faced with these needs, the PNPG proposes a set of decisions which represent the consensus and committment of coordinated action of these agencies.

1.6 LIMITATIONS, ALTERNATIVES AND SHORT TERM MEASURES

The PNPG, at the level of its strategic directives and recommendations, has at its disposal a selection of operational measures which, emanating from the diagnosis of the actual learning situation and the demand for graduate studies, imply the definition of alternatives and immediate interventions in an attempt to overcome the principal strangulation points.

The elements of information and analysis which support the proposal of the PNPG, reveal that the accomplishment of the basic functions of the National System of Graduate Studies would require the conferral of eighty thousand (80,000) master's degree within the next five years.

This most certainly is not a realistic goal since the present system has the capability of receiving only 7.000 candidates per year and suffers from problems of low efficiency.

Besides this, which is considered to be the principal limitation to the goals of this Plan, others are stated here with an aim toward directing more attainable expectations. It is not always feasible to increase available enrollment vacancies by the simple infusion of financial resources, rather it is necessary that there exist the potencial for scientific production and programs for upgrading of staff; not all the training programs for the present faculty can be equally carried out in the different institutions, because training professors implies an infrastructure to release him from his work, replace him and guarantee his salary while he is doing graduate work; not all for the new needs of professors for the undergraduate level are equally filled with graduate people especially since in the system of private, municipal and state institutions there is no formal instrument that leads to this in a wide scale, as in the case of the federal system; the different requests of the work market are reflected in higher education by creating differences in professional viewpoints, remuneration and "status" among the various levels of training and various major areas, and this influences considerably the student drop out from the Masters and Doctoral programs, and consequently in their productivity.

The alternatives adopted by the Federal Government in the face of these restrictions can be summarized in the following claims:

– That it is feasible to adopt upgrading programs to train during the period between 10% and 20% of the present faculty, according to the possibilities of the different areas of work;

– That the vacancies for qualification of new professors initially serve approximately 80% of the demand of the Federal System, 50% of the State and Municipal Systems and 20% of the Private System;

– That the specialization and upgrading courses which have been encouraged on a large scale may contribute toward a significant improvement of the faculty quality, without awarding the Masters and Doctoral degrees.

Besides this, we believe that the total performance of the programs will be more efficient than currently, allowing the system to graduate on the average in a five year period, between 50% and 60% of candidates enrolled. It is worth pointing out that the professional areas 5,6 and 7, respectively Engineering, Health and the Social Professions, began the period with a productivity of around 20% to 30% and should undertake a special effort to improve their operational conditions.

The political – administrative process launched by this Plan, should be conducted in accord with the proposed guidelines, being careful in the first place, that the decisions be related to the Second Basic Plan of Scientific and Technological Development as an essential condition of congruity with the governmental plan. Secondly, that the policies and resulting programs be representative in their conceptualization and adption at the university or educational institution level as an essential condition of commitment to the educational plan.

As this is a plan of expository nature for the formation of human recources and at the same time expressive of a state investment of considerable size and long range, the goals are based on forecasts of performance in the system while limited by some institutional and operational characteristics of the present system. In order to implant in the Federal Government initially makes use of a whole complex of instruments in the form of programs:

– Granting of scholarships for full time students, a program already existing in the present educational policy, which criteria this Plan hopes to redirect.

– Institutional programs for upgrading faculty, recently created and carried out in small scale at MEC (Ministry of Education), and which the present Plan will try to extend to the other higher education institutions during the coming five year period;

– Hiring of faculty in a constant and programmed manner by the institutions, this policy is also recent and will need to be improved in order to attain the objectives and goals of the present Plan.

– The three programs are clearly interdependent and demand a reasonable amount of coordination and commitment, which is expected to be reached during the period.

In the same political – institutional scope of these programs, other besides these will be under negotiation and accomplished through previous agreements and projects,besides the divisional and regional programs for training human resources. In the entire university and especially in areas where efficient combinations of undergraduate, graduate studies and scientific production exists, there will be programs and projects related to the technological policy of the Federal Government, which most probably will help students and professors to focus in on positive and concrete work, conferring a rewarding and responsible feature to the university activities. The existence and the conditions for implementation of these programs must be considered in the decision-making process resulting from the programs described herein and of those that will follow during the implementation phase of this Plan.

During 1975, the implementation process of the Plan will begin. In this sense,the National Council for Graduate Studies considers it fundamental that people and institutions involved in

these activities make contact with this Plan and begin to discuss it and study it in their places of work, making an effort to participate in its implantation.

With regard to the more immediate steps to reach this goal, it is necessary that the government agencies directly involved, MEC, CNPq, FINEP and BNDE, organize themselves for the implementation work, providing the necessary steps to specify these goals and to develop projects which will start and expand the graduate programs.

OTHER IMPORTANT ACTIVITIES WILL BE:

a) The definition and diagnosis of the institutions that provide immediate conditions for the expansion of graduate studies;

b) The definition of the alternatives for attraction of funds, distribution and transfer of the anticipated financial resources, and the release of short term funds for tha beginning of the programs in 1976, and 1977.

c) The definite provision for increasing funds already allocated for scholarships,promoting the distribution of a number significantly greater than the present number and an increase in the value of present scholarships, attempting to meet the needs of scholarship recipients who are initiating their courses still in this calendar year;

d) Provision for immediate measures of job classification and salary scale for faculty and support personnel in the institutions where these personnel are employed under an inadequate system of contract, job category and salary;

e) Provision for the acceleration and expansion of the regular initiatives for upgrading, through programs developed by institutions with the support of MEC.

A constant greater degree of commitment and responsibility in this process of consolidation of higher education must be stimulated (intensive in this first phase and moderate later on) through the sponsoring of meetings and seminars for the discussion and study of the problems of implementation of the Plan, including the participation of faculty, support staff, students and representatives from public agencies, teaching and research institutions, private and public enterprises and scientific and professional associations.

2. COORDINATION OF THE TRAINING OF PERSONNEL IN HIGHER EDUCATION (CAPES)

2.1 THE ROLE OF CAPES IN THE CONTEXT OF THE NATIONAL PLAN OF GRADUATE STUDIES.

Within the frame work of the directives and goals of PNPG, CAPES assumes an important role in implementing the new graduate studies policy, especially in reference to:

– The organization, implanting, follow-up and evaluation of institutional Programs for Teacher Training;

– Expansion of the Scholarship Program both within the nation and in other nations.

– Improvement of Graduate Programs in both the strict and broad sense through a Program of Financial Aid;

– Integration with other agencies in the sense of:

- Offering conditions which allow for the absorption of masters' and Doctoral people within the upgrading program;

- Opening new horizons of opportunity to acquire the Doctorate in a foreign Country;

- Creating new scholarship opportunities in a joint action with the National Council of Scientific and Technological Development (CNPq) and other government agencies.

2.1.1 The Role of CAPES in the Institutionalization of the National System of Graduate Studies.

Keeping in mind that according to the PNPG, the regular functions of the Masters' and Doctoral Programs should belong to the Ministry of Education and Culture (MEC), while the other Departments and Agencies will participate in supporting programs and projects of research; the Ministry of Education and Culture will absorb its responsibility with physical investments, the financing of personnel and other costs in the Federal Institutions (including the financial aid and scholarships necessary for programs of teacher training).

This means that in practice from now, on, the Federal Institutions will have to include in their annual budgets submitted to the Department of University Affairs (DAU), a institutional item for the regular support of graduate studies. In this way DAU will appropriate to the universities connected with graduate programs financial resources for the regular maintenance. Therefore, the role of CAPES is sometimes to support and at others to complement the financial resources in a combined action with DAU.

CAPES will function as:

– An initial investment to plan and implant new courses and new majors or expand the activities of the programs already existing.

– To the degree that the program natures and its support becomes an integral part of the normal yearly budget of DAU.

– To assume a complementary role, grating resources no longer for the regular support of the program, but to increase its performance or support it in additional activities.

– To act principally in granting scholarships directed primarily toward the formation of human resources in order to improve the teaching staff of graduate study programs.

In this way, MEC has at its disposal in CAPES a more flexible mechanism for complementary support, by which it can upgrade the performance, redirect existing programs and foster the opening of new programs in areas which are lacking.

Added to these forms of action by CAPES are those of other governmental financing agencies which will continue acting to complement university resources be they public or private universities, to install courses, to support scholarship students on the various levels, and to finance projects of research.

In acordance with the directives proposed by the PNPG for institutional consolidation, CAPES will begin to act with an orientation primarily institutional, directing itself to the central agency of each institution instead of dealing with coordinators of programs, teachers or scholarship students individually, which has been the traditional fragmented procedure.

Concrete forms of this institutional relationship are:

– The allocation of quotas of scholarships directly to programs of graduate studies instead of granting scholarships individually to candidates;

– A global contract with an Institution, acting directly with the central agency which coordinates graduate studies, instead of entering into contracts with the coordinator of each program.

– The implantation, at the national level, of the Institutional Program of Teacher Training (PICD) which offers to the Institutions of Higher Education, quotas of scholarships for the graduate training of its professors. The directives and function of this program are described below.

Clearly, the effort of the federal agencies toward an integrated action to consolidate the Graduate System, should find an internal administrative policy within the university which is capable of guaranteeing stability and conditions favorable to the development of graduate instruction and research. Evidence of this would be, for example:

The flexibility and agility of financial accounting;

The articulation of graduate programs among themselves and the respective departments;

University planning, considering the various aspects of its infra-structure;

The upgrading of the teaching staff and program of instruction in order to meet community needs and priorities.

2.1.2 The function of CAPES in upgrading the performance standards of the national system of graduate studies.

The upgrading of graduate performance standards is understood as a succession of changes in the work conditions and the organization of educational activities for scientific production.

The educational activities are directed toward the formation of human resources at the masters and Doctoral levels, the end product of a joint teacher-student effort. The effective

performance of a good program is initially recognized by the number and quality of students who graduate from it.

The scientific activities include the organization of regular lines of research projects, the development of dissertations and theses, professional works, exchange and study on cultural, scientific, and technical themes.

The preparation and execution of technical and organizational projects in order to advise on the development of a productive administrative system for the formulation of governmental plans and policies.

In order to achieve improvement in performance, PNPG proposes concrete measures to be implemented, among which are:

– Scholarship grants which will allow the student to pursue full time study, hoping that this will also achieve better academic performance both in the quality of his training as well as a reduction in the amount of time required to receive the degree.

– Improvement in study conditions with an adequate physical and administrative infra structure and library facilities;

– Expansion of a teaching staff in full time committment, with the student advisor being available throughout the program and especially during the development of the student's thesis;

– Greater participation of the students in research projects and professional activities maintained by the graduate program.

2.2 INSTITUTIONAL PROGRAM FOR THE UPGRADING OF TEACHERS (PICD)

Defined in its general lines by PNPG itself, the Institutional Program for Upgrading Teachers (PICD) envisions implanting on the national level a process of teacher training characterized by being operational and not overly complex. It will thereby encourage Institutions of Higher Learning to proceed to the continuous development of its human resources by means of graduate training at the Master and Doctoral levels.

The model being set up to implant PICD proposes among its measures the following:

– Prepare personnel necessary for the raising of performance standards in areas which have been identified as deficient and which should have the greatest multiplier effect because they involve a great volume of work combined with a strategic value for an educational and scientific structure.

– Prepare personnel necessary for the expansion of undergraduate teaching and the support and normalization of graduate courses.

– Provide for the partial substituion of teaching personnel who are on leave, working on Masters' and Doctoral degrees, and for their absorption after completion of their degrees.

– Encourage universities to employ personnel trained and prepared by other universities in order to avoid isolation and inward growth (inbreeding) which tend to reinforce eventual deficiencies.

– Maximize the use of the Brazilian University System especially the potential already established in Masters' and Doctoral programs, by having recourse to contracts and programs which are common to more than one institution, emphasizing the inte-regional nature of the nuclei of graduate studies.

2.2.1 Program Antecedents

Until the end of 1974, there were few institutions of higher education which followed a policy of systematic upgrading of its teaching staff. Graduate training depended on personal initiative or in some better situations on the isolated program of a university department. With respect to human resources, there prevailed in the financing agencies, and among them CAPES, the criteria of granting fellowships on the basis of merit of the individual candidate, without reference to an institutional plan. The result of this was a weakening in the process to implant the university reform because of the great inequality in the distribution of professors with the

required degrees. This also created large gaps in areas of concentration considered to have priority because of their strategic importance for Brazilian development and their multiplier effect on the academic structure.

A change from this form of action was based on a pilot program. It involved the Federal Universities of Alagoas, Amazonas, Mato Grosso and Juiz de Fora, to which DAU and CAPES committed technical and financial assistance to elaborate and execute their plans for upgrading their teaching staffs.

The program was distinguished by two essential innovations: The first consisted in offering quotas of scholarships to the institutions in order to meet the needs of their programs to train teachers on the masters' and Doctoral level;

The second consisted in offering teacher substitutes for those enrolled in garduate degree programs so that they could dedicate full time to study.

In order to execute this policy, DAU and CAPES adopted an integrated action whereby the former guaranteed the teacher substitutes while CAPES guaranteed the student whith a scholarship, travel expenses, tuition and other student fees.

The experimental project with the above cited universities was still in its initial stages when the PNPG, aproved on March 19, 1975, ratified the idea, making it the " backbone " of MEC to train human resources for Brazilian Universities, providing specific financial aid for the program during the period 1975 – 1979. At this moment, PICD became a national endeavor and its implantation is an object of the highest priority among the CAPES programs.

In a joint effort, DAU and CAPES provided two lines of action aimed at promulgating the new policy of MEC to the universities. The presidents of the Federal Universities were the first to be officially informed and invited to participate in PICD.

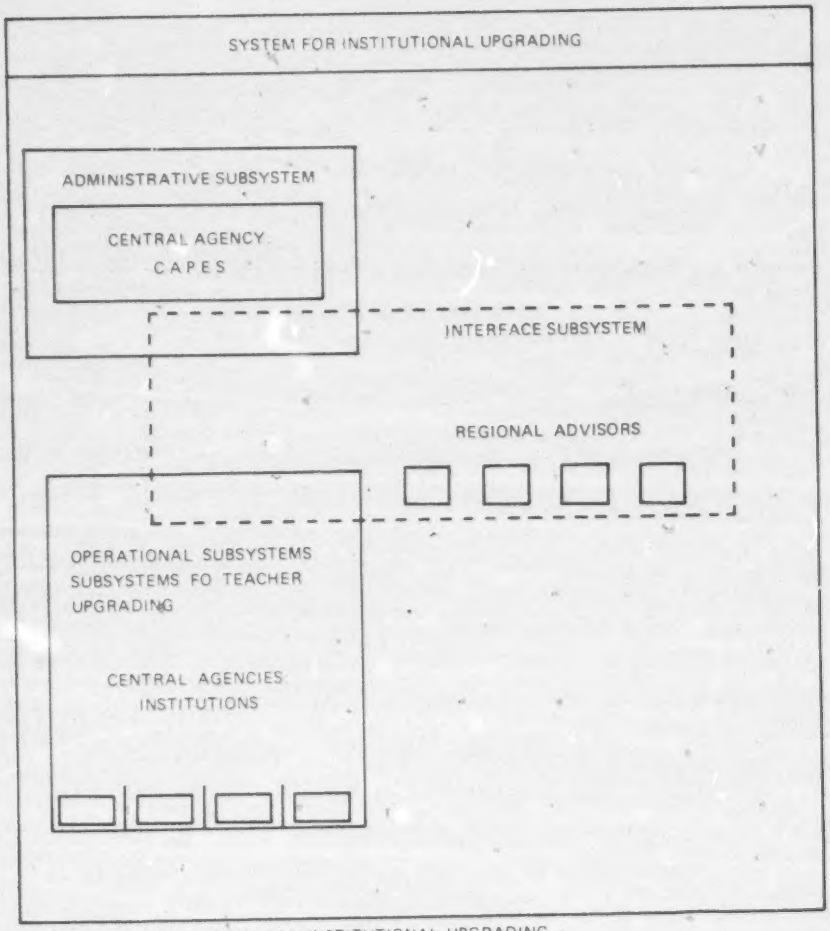
In meetings held on March 20, 1975 in Recife, PE. and May 9, 1975, in Florianópolis, SC., presided over by the Director of DAU, the basic guidelines and operational norms of the program were discussed. Upon occasion of the meetings, an outline of activities for planning was drawn up to be developed at the institutional level with the technical support of advisors from CAPES. The second line of action, synchronized with the first, was developed principally in environment of CAPES, aimed at defining a system and support instrumentation to implant the program, maturing through direct contact with Institutions of Higher Education, thereby acquiring a more design.

2.2.2 Characteristics of the program

In order to achieve the objectives of PICD, a planning process which distinguished three components within a systemic focus was set up and defined: The administrative subsystem, the operational subsystem and the interface subsystem.

2.2.3 Administrative Subsystem

The administrative Subsystem has CAPES as the centralizing agency. It establishes the principal functions of each of the components of the system, the general norms for its functioning and the guidelines for the elaboration of annual and long term plans.



MODEL OF THE SYSTEM FOR INSTITUTIONAL UPGRADING
SUBSYSTEM COMPONENTS

Following are the specific duties of the Administrative Sub-System:

– Planning at the national level for the ratification of policies and general norms for system functioning;

– General planning through time lines, financial programming and the establishment of contracts with Higher Education Institutions;

– Control of project execution of the Higher Education Institutions through periodevaluations of partial results which are obtained;

– Evaluation and control of the program to verify its performance and make adjustments.

2.2.4 Operational Subsystem.

The operational subsystem is formed by the Higher Education Institutions which fulfill the minimum requirements established by the program. In order that the PICD may show greater potential for outcome, it is necessary that the Higher Education Institutions which participate have available:

– Global planning or at least the intention to initiate it, evidenced by the existence of directives for its implantation already duly programmed.

– A planning and coordinating agency for the development of human resources (justly formalized by internal regulations or by memorandum of the President) whith specific duties for the coordination of PICD, and having an organization manual with corresponding norms;

– Norms for the selection of teachers and recent graduates, candidates for scholarships and other financial aid to be granted by the program.

The duties of the institutions of higher education who will participate in the program, are:

– Long range planning in order to devise their own policy for upgrading teachers, and for meeting the national guidelines and regional needs; the establishment of goals by areas of learning within the limits of the number of professors on leave of absence.

– Elaboration of annual projects which will allow plans of training to be developed at least one year in advance. The flexible nature of the yearly repetition in programming, will allow the Institution of Higher Learning to update and correct discrepancies in former plans.

– Evaluation and control of the plan which includes the program of leave of absence, control of the utilization of professors connected to their courses and their reintegration upon return from leave.

2.2.5 Interface Subsystem.

The interface subsystem is made up of the regional technical advisors who establish connections between the administrative subsystem and the operational subsystems. The technical advisors have a relevant importance in the system because through them CAPES will receive reactions to the program from the Institutions of Higher Education. This will provide the program with a more defined accuracy and consequent secutiry.The presence of advisors in the Institutions of Higher Education will provide more confidence in the process of developing plans, at the same time guaranteeing their quality.

The perspectives are such that in the next phases of PICD, which require continous control and evaluation, this type of direct consulting will assume an even grater important role.

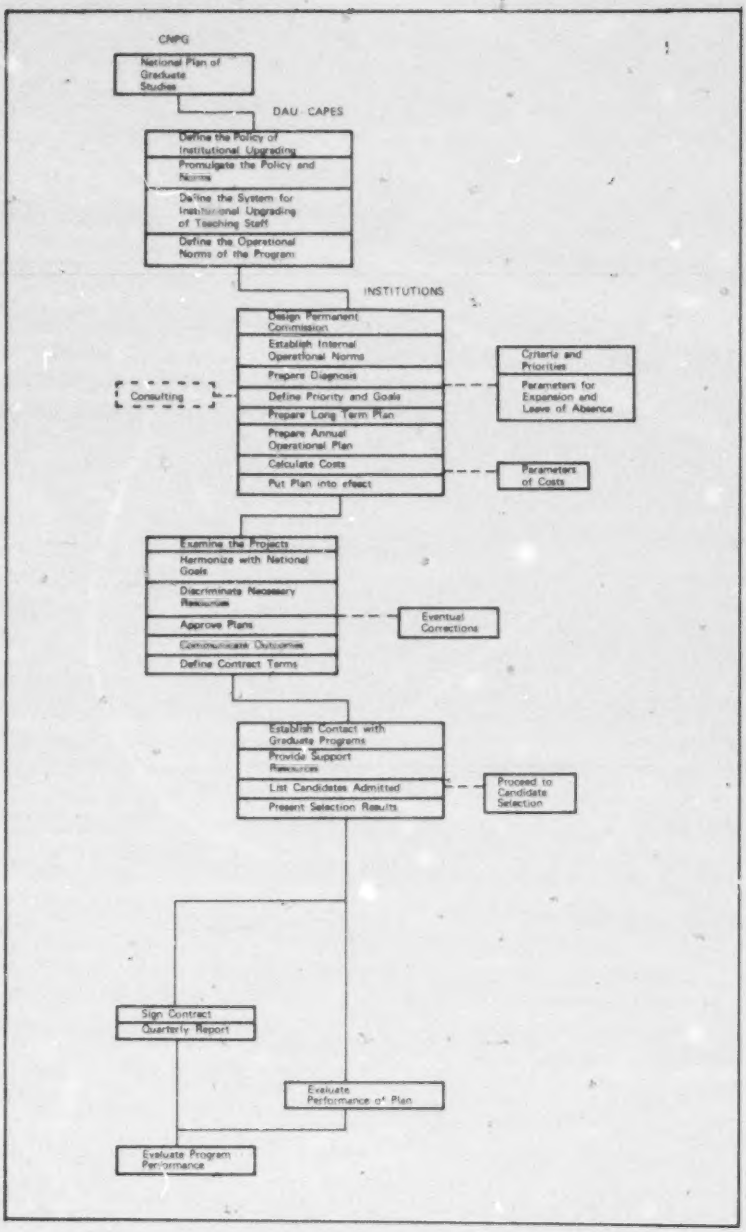
The interface subsystem role is;

– To offer technical assistance to the Institutions of Higher Education (IES) to help them elaborate, execute and control plans and projects to upgrade teachers.

– To control the flow of information by evaluating the analytical information collected and stored at the Institution level, and the verification of synthesized information sent to the administrative subsystem.

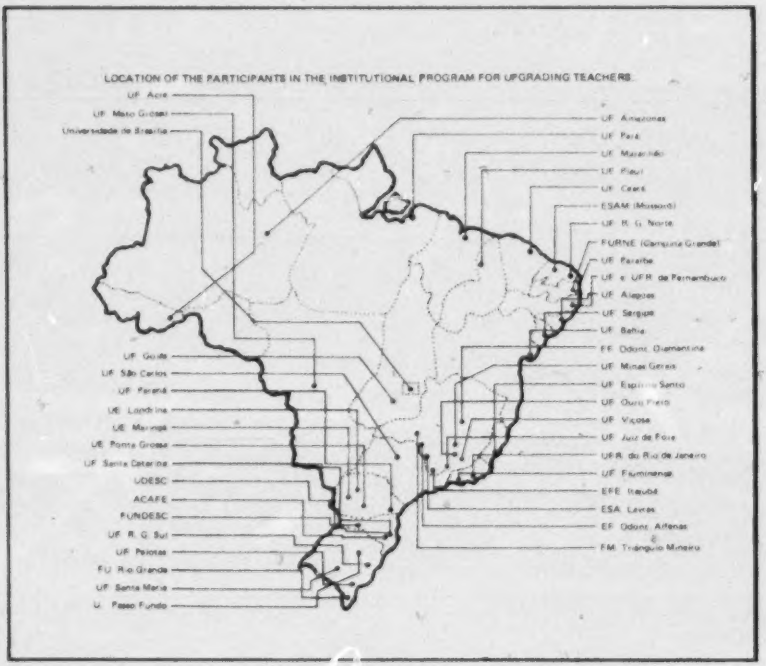
– By means of a preliminary analysis, to evaluate and control the activities for the execution of projects as well as their audit with direct verification in the IES.

– Participate in the national plan with the presence of consultants, for the process of evaluation and revision of the program.



Flow Diagram of the Process of Planning and Establishment of the P.I.C.D.

Up until August, 1975, 38 Institutions of Learning participated in the program of which 32 were federal, 4 state and 2 private. The map shows the location of the institutions, participants in the first phase to implement the PICD.



Concerning the title one owns, it will be the main indicaton of the performance program, and it may be understood the following variations on the droft of the teaching staff with the twenty-eight (28) "IES".

TEACHERS	1975	%	1979	%	1982	%
WITHOUT ANY POSTGRADUATE COURSES	14.508	80	17.181	71	14.234	57
MASTER	2.253	13	5.297	22	6.933	28
DOCTORS	1.325	7	1.810	7	3.790	15
TOTAL	18.086	100	24.288	100	24.957	100

Evaluation Process for PICD

Definition of Evaluation Criteria

Meeting PICD Objectives	Objectives	Operational Indicators of Performance
	Improve Human Resource Qualifications in IES. Train 12,000 Professors from 1975 – 1977.	Number of Professors and Recent Graduates Trained by PICD. Increase in Percentage of Degree Graduates Percentage increase of Masters' Degrees Percantage increase of Doctoral Degrees.
	Absorption of Teachers upon Course Completion	Percentage of Absorption of Degree Graduates by IES (Professors and Recent Graduates).
	Give Priority Attention to Areas of highest Multiplier Effect.	Percentage Increase of Leaves of Absence in Areas of the Fundamental Sciences and Education over the total. Comparison of Training before 1975 and After. Compare Number of Years required to obtain Degree before and after PICD.
	Accelerate process Training and Substitution of Professors	Percentage of teachers trained in their own Institution. Percentage of Scholarships in Country over total number. Analysis of use of Graduate Openings.
	Eliminate Inbreeding	At the National Level 1. Level of Structure of the Administration and technical advisors.
Objectives of Process itself	Utilize the Brazilian Potential	2. Ability to Stimulate adequate Response in IES as indicated by the Quality and punctuality of the plans and Reports.
	Carry out a permanent system of Techer Training	At the Institutional Level 1. Formation and Maintenance of Commissions 2. Quality and Punctuality of Plans and Reports 3. Carrying out Activities as: – Implantation of a single system of Informations or revision of the former system. – Development of unique models from basic Norms. – Informing of Professors About Oportunities for Training. – Formulate Rationale for the Selection and Control Processes.

The percentage of professors without degrees in itself justifies the need for this program, as well as the possible outcomes as they are actually defined. Still, they will have to undergo some modifications to attain the goals of the PNPG.

Number of Professors or Future Professors who will annually begin Masters' and Doctoral Courses.

YEAR	1975	1976	1977	1978	1979	TOTAL
PNPG Goals	300	1.200	2.500	3.500	4.500	12.000
Masters	–	1.160	1.189	1.251	1.269	4.869
Doctors	–	192	247	247	365	1.076
TOTAL	–	1.352	1.436	1.523	1.634	5.945

2.2.6 Results Obtained.

The fact that the program was opened on the national level without presenting and applying

the results of its short experience, the model of the Institutional System to Upgrade Professors was developed, applied and modified at the same time that it was being carried out. Therefore,the form that it presents today bears the work of progressive maturation, the result of direct contact with the actual institutional situations. Therefore, flexible schemes were used within dependable guidelines and stable norms. This is one of the chief merits attributed the model as can be judged from the results obtained. It served as catalyst for a planning process within the institutional structure.

It resulted in the creation of 38 institutional units to plan and execute over a long range, a policy for human resource development.

In order to elaborate this policy, the institutions had to examine their internal structure and their goals and objectives, in order to correlate them with the regional plans of economic development and the overall educational system. The technical characteristics of the model, which results from its systemic structure, allied with the strategy for its application and a personalized consultant service in all stages of planning, caused the IES to take note of their limitations both with respect to the quality of information which they possess as a well as the need to structure an internal system for recording data to be used to develop and evaluate human resources, and provide data follow up activities.

In this phase of establishing the program, one of the points to which CAPES will pay special attention is the placement of PICD candidates in graduate programs. Part of the strategy also involves the redirection of support resources to the courses in order to increase the number of openings offered according to the demand from University Professors going on leave of absence.

2.3 NATIONAL PROGRAM FOR THE UPGRADING OF TEACHERS IN HIGHER EDUCATION INSTITUTIONS.

The National Program for the Upgrading of Professors in Institutions of Higher Education (PROCAPIES) proposes to advance in a systematic way, the qualification of university teachers not take care of by graduate degree studies. This will be done by means of courses, field experiences or equivalent means at the upgrading and specialization level and through the Institutions of Higher Education.

The program presents several alternatives for its implantation, considering for the moment the following methods of training within the upgrading and specialization scheme.

- Summer courses
- School term courses
- Field work

Other alternatives will be considered in function of the number of teacher to be trained and the characteristics or needs shown by a proposed area of knowledge.

Training or improvement is understood as upgrading in the broad sense and in these terms PROCAPIES has directed its activities toward improving the behavior and attitudes of professors in higher education. More than the more transmission of teachnical knowledge, what it hopes to achieve is to bring about a change in teacher behavior along the lines of opening up their ability to communicate, interact and empathize in teaching situations. They will thus cause a reaction in their work surroundings which will bring about change significat to the entire System of Education.

In order to increase the probability of achieving the program objectives, a strategy will have to be adopted which will allow the achievement of proposed short range and intermediate goals. It is understood by anticipated goal or outcome, the upgrading of professors of the Institutions of Higher Education, basically to:

- Dynamize theteaching – Learning process;
- Utilize and/or produce efficiently works of scientific investigation.

2.3.1 Basic Activities

To achieve its objectives PROCAPIES will promote, besides field experiences, courses of upgrading and specialization for the professors of Institutions of Higher Education.

These courses or activities are characterized as follows:

a) Upgrading (Advencement)

A theoretical – pratical program or activity whose purpose is that of expanding and developing knowledge of Higher Education methodology and scientific methodology with specific contents and a minimum duration of 180 class hours.

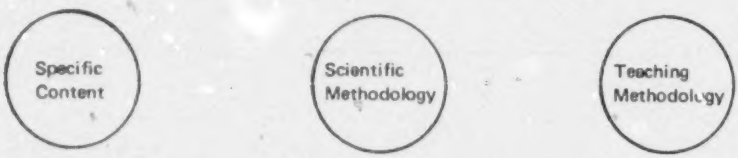
b) Specialization

A program or group of activities with designed with the purpose of developing in - depth practical and theoretical knowledge in specific sectors of learning, of training in methodology of teaching and in scientific methodology with a minimum duration of 300 class hours.

The upgrading and specialization programs should meet the following principles:

– The principle of interdisciplinary study:

Integrate the specific knowledge of one explicit area of science and its corresponding methodology with knowledge related to the area of methodology of teaching.



– The principle of instrumentality:

The programs must be organized in such a way, based on a structured body of knowledge, so as to promote the development of specific competencies, allowing the professor not only to acquire, actualize and/or intensify his theoretical knowledge but also to process and manipulate this knowledge, with a view to the effective performance of the professor function.

– The principle of flexibility:

Starting from a basic structure which includes the areas in item (a) the organization of the programs is marked by a flexibility which makes possible an emphasis on one or the other area (the alternative of greater concentration in one or the other), depending on the characteristics of the population, the needs, priorities and features of each situation.

– The Principles of Terminality, Continuity and Articulation.

Considering the professional improvement of higher education personnel as a continous and progressive process, it is desirable to establish a line of continuity and also of terminality and articulation in the upgrading and specializing programs.

One and the same program can be organizationally planned so that at the end of 180 class hours, the professor can receive his upgrading certificate, or, if he wishes to, he can chose to continue through a second phase. The teecher who goes through the two phases will receive a Specialization Certificate for 300 class hours of work.

At the discretion of each institution where there exists Masters' level programs, the possibility can be studied whereby credits from the upgrading and more so the specialization course can be applied for outstanding students to graduate degree programs, depending of course on their equivalency, the nature and quality of the graduate level, upgrading and specialization Courses.

2.3.2 Operational Structure of the Model

The upgrading and specialization Courses will use the module as its basic unit. Each

module corresponds to a course or group of related courses. They can be arranged in different ways and with a varied number of class hours, as long as the minimum established for each tupe of course is maintained.

CHARACTERIZATION OF THE MODEL CONTENT
BASIC UNITS

Course (s) with a specific content in a designated areas of Knowledge	Course (s) of a scientific Methodology nature	Course (s) of a Didactic-Pedagogical nature

Courses with a Specific Content: Have the purpose of offering the teacher in training the opportunity for:

– Updating, complementing and/or advancing theoretical and pratical knowledge in the specialized area.

– Enhancing knowledge in the methodology corresponding to the specialized area of the teacher.

The programmed content of these courses will be specified in each area of specialization.

Courses of a methodological – Scientific Nature: in a plan of action which integrates the theoretical and pratical, such courses offer the teacher in training the opportunity to:

– acquire a theoretical base in the research process and its function in developing theories in the various sectors of thought;

– understand the logical structure of the scientific research process; to acquire and manipulate specific terminology of the courses in scientific methodology, in the methodology and techniques of statistics and research;

– develop specific competencies in empirical research which will enhance performance in the science.

Consequently, courses will include such programmatic contents as:

– Theory of Scientific thought;
– Construction of Theory or Principles of Scientific Methodology;
– Scientific Logic;
  Structure and functions of the Methods of Empirical Research;
– Methods and Techniques of Research;
– Applied Statistics;
– Independent work and Study Programs in which the professor can apply his area of specialization to a specific content.

Courses of a Didatic – Pedagogical Nature: In a plan of action which integrates theory and practice, such courses offer the opportunity for the teacher basically to:

– Situate learning within the socio-educational content of the current Brasilian reality;
– Acquire a theoretical foundation of the teaching-Learning process;
– View teaching as an organization and interaction system;
– Develop technical teacher competencies which will guarantee the effective performance of the teaching function.

These courses will include such programmatic contents as:

- Theory of Instruction and Learning;
- Models for Instruction-Learning;
- Human Relations or Interpersonal Dynamics of the Teaching Environment;
- Curriculum and Programs;
- Dynamics of the University System;
- Independent programmed Projects, which involve the application of the didactic content to that of the area of specialization, with a view to training the educational technician for the specific performance of class-room situations;
- Other courses which each Institution should consider important to develop according to the population and characteristics of each program.

The work of applying pedagogical and/or methodological knowledge to the specialized area of the teacher in training, can be done in different ways and according to each situation.

Some Methods Are:

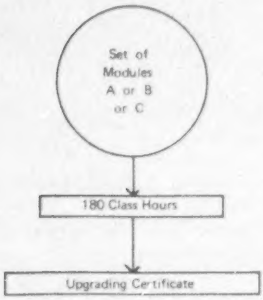
- Monographs
- Research projects
- Instructional projects
- Supervised field work,
- Others

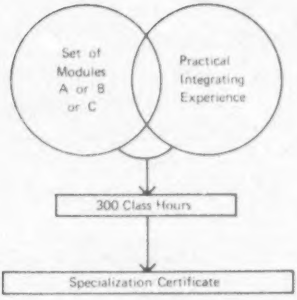
Instruction and a specific area of specialization are two things to be kept in mind when we speak of training a professor in a defined area.

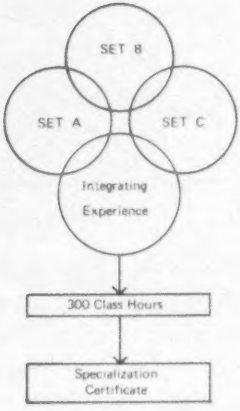
In order to heed the principles of continuity, terminality and articulation of courses and the definitions proposed for programs of upgrading and specialization, we need:

- a set of modules with a total of 180 class hours which confers a Certificate for the Upgrading course;
- a set of modules, complementary or not to the first set, with a total of 300 hours which convers a Certificate for the Specialization Course.

MODEL DESIGN







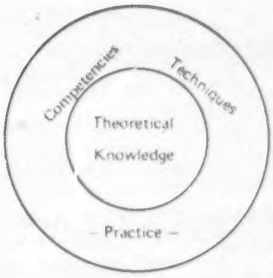
Module A – Activities in Specific Content
Module B – Activities in Methodology of Instruction.
Module C – Activities in Methodology of Research

2.3.3 MODEL PROPOSED FOR FIELD EXPERIENCE BACIC ASSUMPTIONS:

Since the field experience gives objectivity to training by providing service in techniques necessary for professional performance, it is necessary that they heed the following principles:

– The Principle of Instrumentality:

The activities offered in the field experience are organized in such a way as to provide the development of specific competencies which will broaden and enhance certain theoretical knowledge.



This principle, emphasizes the need for all programs to stress the effective performance of teacher function, independent of the specializes field to be developed.

– The Principle of Terminality:

This principle receives relevancy considering the specific nature of the types of field experience since they can be developed at either the upgrading or specialization level. The program form, in terms of number of hours, possiblity of credits, etc. will determine the nature of the field experiences at the level of specialization.

– The Principle of Flexibility:

Here the field experience can be structure with the indepth development of a specific technical competency as a criteria, or it can provide for the development of several competencies which are complementary to the intended area of knowledge.

The composition of modules is directlu connected with their insertion in activities of upgrading and specialization, basically corresponding to the development of competencies related to a theoretical base. Independently of the first criteria, each module will necessarily have a theoretical part in its composition which will lay the foundation for and give aid to train in specific competencies which represent the practical aspect.